



COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

DONALD L. WOLFE, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
www.ladpw.org

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: WM-6

August 31, 2006

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

AMENDMENT TO THE ANTELOPE VALLEY FINAL REPORT ON THE COMPREHENSIVE PLAN OF FLOOD CONTROL AND WATER CONSERVATION SUPERVISORIAL DISTRICT 5 3 VOTES

IT IS RECOMMENDED THAT YOUR BOARD, AFTER A PUBLIC HEARING:

Approve the enclosed Amendment to the Antelope Valley Final Report on the Comprehensive Plan of Flood Control and Water Conservation (Plan), which increases the fees for drainage facilities to be paid by subdividers in the Antelope Valley Drainage Area, pursuant to County Code, Section 21.32.400, and provides for the annual review and adjustment of such fees corresponding to future increases in the Construction Cost Index for the Los Angeles area.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

In 1987 your Board approved the Plan prepared by the County of Los Angeles Department of Public Works. The goal of the Plan is to address drainage issues created by development in the absence of a coordinated regional flood control district. The Plan requires developers of new subdivisions in County unincorporated areas of the Antelope Valley Drainage Area to pay an impact fee that would eventually fund the planning, design, and construction of the Plan's proposed infrastructure. To date, these fees have paid for regional coordination and planning efforts and the acquisition of right of way for future drainage facilities.

The Honorable Board of Supervisors
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The Plan contains provisions for updating costs and drainage fee calculations, but to date there have been no fee increases. Since 1987 the Construction Cost Index shows that costs have significantly increased. At the same time, development of the Antelope Valley has increased and is expected to continue. Annexation and zoning have altered the type and amount of development in the Antelope Valley Drainage Area. Therefore, we propose that the existing fees be revised to reflect the updated cost of construction and the current type and amount of development occurring within the Antelope Valley Drainage Area. The supporting data for the proposed fee increase, including detailed engineering quantity, costs, and analysis is enclosed (Attachments 1-11).

The fees set forth herein shall be reviewed annually by the Director of Public Works. Beginning on July 1, 2007, and thereafter on each succeeding July 1, the amount of each fee shall be adjusted as follows: calculate the percentage movement between March of the previous year and March of the current year in the Construction Cost Index for all urban construction in the Los Angeles area, as published by the Engineering News Record statistics, adjust each fee by the said percentage amount and round up to the nearest dollar. However, no adjustment shall decrease any fee and no fee shall exceed the reasonable cost of providing services. When it is determined that the amount reasonably necessary to recover the cost of providing services is in excess of this adjustment, the Director may present fee revision proposals to the Board of Supervisors for approval.

Implementation of Strategic Plan Goals

This action meets the County Strategic Plan Goal of Fiscal Responsibility by providing a sufficient fund for future planning, design, and construction of drainage facilities in the Antelope Valley.

FISCAL IMPACT/FINANCING

There is no impact to the County General Fund. The fee increase will increase the revenue for the Antelope Valley Drainage Fee District Fund.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

The Antelope Valley Drainage Area fees are imposed on developers pursuant to Section 66483, et seq., of the Government Code. Section 66483 authorizes the County to impose, by ordinance, a requirement for the payment of fees to defray the actual or

The Honorable Board of Supervisors
August 31, 2006
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estimated costs of constructing planned drainage facilities for the removal of surface and stormwater from local or neighborhood drainage areas.

The County's ordinance implementing this authorization, generally, is codified in Section 21.32.400 of the Los Angeles County Code.

The Antelope Valley Drainage Area in particular was adopted in 1987 by Ordinance 87-0083, based on the Plan.

Part V., Section E of the Plan provides as follows:

Development of the land located within the Antelope Valley Drainage Area is not constant nor is the cost of construction. Therefore, in order to equitably assess future development as well as collect sufficient funds to construct those facilities attributable to future development, it is necessary to periodically evaluate the Construction Cost Index and the type and amount of development being constructed within the Antelope Valley Drainage Area. With this information, the drainage fee may be increased or decreased as appropriate.

Pursuant to Section 66018 of the Government Code, prior to adopting an ordinance, resolution, or other legislative enactment approving an increase in an existing fee, the County must hold a public hearing at which oral or written presentations can be made. Notice of the time and place of the meeting, including a general explanation of the matter to be considered, must be published in accordance with Section 6062(a) of the Government Code. Section 6062(a) requires that the notice be published for ten days in a newspaper regularly published once a week or more often, or in two publications with at least five days intervening between the dates of first and last publication not counting such publication dates being sufficient.

The enclosed Amendment has been reviewed by County Counsel and approved as to form.

The Honorable Board of Supervisors
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ENVIRONMENTAL DOCUMENTATION

A Negative Declaration for the Plan was approved by your Board in connection with the adoption of the Antelope Valley Drainage Area on June 23, 1987.

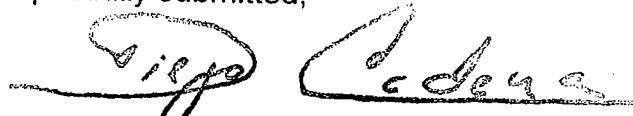
IMPACT ON CURRENT SERVICES (OR PROJECTS)

There would be no adverse impact on current services.

CONCLUSION

Please return three adopted copies of this letter to Public Works.

Respectfully submitted,



DONALD L. WOLFE
Director of Public Works

BH:ad

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Enc.

cc: Auditor-Controller
Chief Administrative Office
County Counsel

**AMENDMENT TO ANTELOPE VALLEY FINAL REPORT ON
THE COMPREHENSIVE PLAN OF FLOOD CONTROL AND
WATER CONSERVATION, JUNE 1987**

The Los Angeles County Department of Public Works hereby proposes the following amendments to the Antelope Valley Final Report on the Comprehensive Plan of Flood Control and Water Conservation dated June 1987 (Plan).

Section IV.E, paragraphs 1 and 2, page 6, of the Plan are hereby amended to read as follows:

The comprehensive plan proposes flood plain management in the hillside areas of the valley, nonstructural management approaches in the rural areas, and structural improvements in the urbanizing area. The structural improvements proposed for the urbanizing areas of the valley include 8 basins ranging in size from 30 to 150 acres, 119 miles of open channels, and 72 miles of storm drains.

The estimated total cost of the Plan for both the unincorporated and incorporated areas, including acquisition of necessary rights of way is:

Basins	\$222,018,617.80
Channels	869,037,246.00
<u>Storm Drains</u>	<u>311,945,040.00</u>
Total Cost	\$1,403,000,903.80

Section V.D on pages 8 and 9 of the Plan is hereby amended to read as follows:

Future development in the Antelope Valley will increase storm runoff and will contribute to the need for management of storm runoff. Without the comprehensive plan, the threat of flood damage could impede the approval of additional development due to the health and safety risks involved. In order to ensure the equitable involvement of the private sector in financing the drainage facilities attributable to future development in the unincorporated County territory, the proposed drainage fee is based on the extent future development occurs in the unincorporated County territory and either benefits from construction of the drainage facilities funded by the comprehensive plan or contributes to the need for the comprehensive plan.

The cost of that portion of the comprehensive plan attributable to future development in the unincorporated areas of the Antelope Valley is determined as follows:

Total Cost of plan	\$1,403,000,903.80
Cost attributable to incorporated territory	-851,975,058.00
Cost attributable to existing development in unincorporated areas	<u>-67,649,261.05</u>
Cost attributable to future development in unincorporated areas	\$483,376,584.75

The benefits realized by existing entities and development will be funded from local and Federal sources, such as the Cities of Lancaster and Palmdale, the City of Los Angeles Department of Airports, Edwards Air Force Base, U.S.A.F. Plan 42, and the County of Los Angeles.

The three categories used in calculating the drainage fee are related to intensity of land use and the proportionate contribution to the increase in runoff. These categories are single-family development, multifamily development, and commercial/industrial development. A multifamily development contributes approximately one-half as much runoff as a single-family development, and one acre of commercial/industrial development contributes runoff approximately equivalent to five single-family units on the same acre.

It is anticipated that future divisions of land within the Antelope Valley Drainage Area will create approximately 54,087 single-family lots, 5,207 multifamily dwelling units, and 6,333 acres of commercial development. These divisions were calculated by the County of Los Angeles Department of Public Works based on data in the Department of Regional Planning's Zoning Ordinance Summary and current and projected development trends.

An equation can be written to calculate the drainage fee based on the cost of the plan attributable to future development, the relative contribution of runoff from each category of land use, and anticipated future divisions of land.

SFDF = Single-family drainage fee

MFDF = Multifamily drainage fee = $\frac{1}{2}$ SFDF

CDDF = Commercial/Industrial development drainage fee = 5 SFDF

Anticipated Future Development X Drainage Fee per Development = Cost of the Project Attributable to Future Development.

$$(54,087 \text{ units}) (\text{SFDF}) + (5,207 \text{ units}) (1/2 \text{ SFDF}) + (6,333 \text{ acres}) (5 \text{ SFDF}) = \\ \$483,376,584.75 \\ (88,355 \text{ SFDF}) = \$483,376,584.75 \quad \text{SFDF} = \$ 5,471$$

Therefore, the proposed drainage fee for 2006 should be:

Single-family Unit	\$ 5,500*
Multifamily Unit	\$ 2,750*
Acre Commercial/	\$27,500*
Industrial Land	

* Figures are rounded up per the Los Angeles County Auditor-Controller.

In order to lessen the short-term impact to the development community, drainage fees will be phased in pursuant to the schedule depicted in the following table. On July 1, 2009, there will be a one-time adjustment to bring the 2006 fees to current 2009 values per the CCI.

Schedule	\$ Per SFR Unit	\$ Per Multifamily Unit	\$ Per Comm./Indus. Acre
Effective 60 days after adoption	3,200	1,600	16,000
Effective July 1, 2007	4,400	2,200	22,000
Effective July 1, 2008	5,500	2,750	27,500
Effective July 1, 2009	2006 fees would be brought to 2009 values per a CCI adjustment and adjusted annually thereafter as proposed in Section V.E.		

Section V. E., commencing on page 9 of the Plan is hereby amended to read as follows:

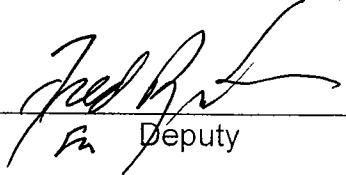
Development of the land located within the Antelope Valley Drainage Area is not constant nor is the cost of construction. Therefore, in order to equitably assess future development as well as collect sufficient funds to construct those facilities attributable to future development, it is necessary to periodically evaluate the Construction Cost Index and the type and amount of development being constructed within the Antelope Valley Drainage Area. With this information, the drainage fee may be increased or decreased as appropriate.

Additionally, beginning on July 1, 2010, and thereafter on July 1 of each succeeding year, the fees set forth herein shall be reviewed by the Director of Public Works and the amount of each fee shall be adjusted as follows: calculate the percentage movement between March of the previous year and March of the current year in the Construction Cost Index for all urban construction in the Los Angeles area, as published by the Engineering News Record statistics, and adjust each fee by said percentage amount and round up to the nearest dollar. No adjustment shall decrease any fee. The foregoing notwithstanding, the fees set forth herein shall not exceed the estimated reasonable cost of providing the services and facilities described in this Plan. If it is determined that the reasonable amount necessary to recover the costs of providing the services and facilities described in this Plan exceeds this adjustment, the Director of Public Works may present fee proposals to the Board of Supervisors for approval.

Date 10/19/06

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

By



Fred H. S.

Deputy

APPROVED AS TO FORM:

RAYMOND G. FORTNER, JR.
County Counsel

By 
[Redacted] Deputy County Counsel

BH:sv

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DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN'S DRAINAGE FEES
REVENUE AND EXPENDITURE COMPARISON
FY 2002-03 THROUGH FY 2004-05

Description	FY 2002-03	FY 2003-04	FY 2004-05	Total
Revenues ⁽¹⁾:				
Revenue Source 8322 - Excavation Permit-Act Cost	0.00	535.01	0.00	535.01
Revenue Source 8605 - Interest from Treasury Pool Deposit	10,880.59	7,741.09	17,111.21	35,732.89
Revenue Source 9358 - Road Maint. Services	0.00	0.00	11,732.03	11,732.03
Revenue Source 9360 - Contract Cities - Traffic Control	0.00	1,678.93	0.00	1,678.93
Revenue Source 9883 - Developer Fees	136,000.00	214,000.00	59,500.00	409,500.00
Total	146,880.59	223,955.03	88,343.24	459,178.86
Expenditures ⁽²⁾:				
C6140367 - Exc - Jando Drive 1690	0.00	535.01	0.00	535.01
H0300167 - M&R Rainga Sta N of Fcd Boundary	9,011.37	6,963.53	6,047.03	22,021.93
T91034000 - Signal Plan Review - JAS	127.00	0.00	0.00	127.00
E0389504 - Ant Valley Mstr Pln Study-N	0.00	765.86	1,011.81	1,777.67
F3053580 - Slurry Squirrel Holes	0.00	805.52	0.00	805.52
H0300205 - Public Safe N of Fcd Boundary	0.00	89.75	0.00	89.75
R9LCF13722 - 13722 Curb/Walk Perm. Repairs 04/05	0.00	0.00	0.01	0.01
Total	9,138.37	9,159.67	7,058.85	25,356.89
Over/(Under) Recovered	137,742.22	214,795.36	81,284.39	433,821.97
Percentage of Expenditure Over/Underrecovered ⁽³⁾	1507.30%	2345.01%	1151.52%	1710.86%

Footnotes:

- (1) Revenue data was acquired by Fund 106 Antelope Valley Drainage Fee - V42 from the Revenue Financial Analysis Inquiry window in the Financial Accounting System.
- (2) Expenditure data was acquired by Fund 106 Antelope Valley Drainage Fee - V42 from the Expenditure Financial Analysis Inquiry window in FAS.
- (3) The Percentage of Expenditure Over/Underrecovered was computed by dividing the amount of Over/(Under) Recovered by the Total Expenditures.

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
PROPOSED ANTELOPE VALLEY COMPREHENSIVE PLAN DRAINAGE FEES**

Infrastructure Type	Miles or Each⁽¹⁾	B=A*5280	C	D=B*C	E=D*25% F=D+E
Open Channel	32	168,960	\$ 1,106.49	\$ 186,952,550.40	\$ 46,738,137.60
Closed Conduit	22	116,160	\$ 656.45	\$ 76,253,232.00	\$ 19,063,308.00
Detention/Retention Basin	8	\$ 22,201,861.78	\$ 177,614,894.24	\$ 44,403,723.56	\$ 95,316,540.00
Total			\$ 440,820,676.64	\$ 110,205,169.16	\$ 222,018,617.80
					\$ 551,025,845.80

	A	B	C	D = (A+B) * C
Type of Lot	Number of Undeveloped Units or Acres⁽⁴⁾	Number of Developed Units or Acres⁽⁵⁾	Single-Family Drainage Fee Equivalent	Total Number of Single-Family Drainage Fees
Single-Family	54,087	7,107	1.00	61,194.00
Multi-Family	5,207	715	0.50	2,961.00
Commercial/Industrial	6,333	980	5.00	36,565.00
Total	65,626.97	8,802.00		100,720.00

Single-Family Drainage Fee = Total Infrastructure Cost / Total Number of SFD⁽⁶⁾ **\$5,470.87**

Multi-Family Drainage Fee = 1/2 Single-Family Drainage Fee **\$2,735.44**

Commercial/Industrial Development Drainage Fee = 5 * Single-Family Drainage Fee **\$27,354.35**

Proposed Single-Family Drainage Fee Per Lot	\$5,471
Proposed Multi-Family Drainage Fee Per Lot	\$2,736
Proposed Commercial/Industrial Development Drainage Fee Per Acre	\$27,355

Footnotes:

- (1) Public Works' Mapping and Property Management Division produced a digital version of the 1987 Antelope Valley Drainage Study map to determine the amount of open channel, closed conduit, and detention/retention basins required within the unincorporated portion of the Antelope Valley.
- (2) See Attachments 3, 4, and 5 for calculation of unit costs of open channel, closed conduit, and detention/retention basin, respectively.
- (3) This includes Preliminary Engineering, Project Management, and inspection costs.
- (4) See Attachment 6 for the total number of potential single-family lots, multi-family lots, and the commercial/industrial acreage available within the unincorporated areas of the region.
- (5) See Attachment 11 for the total number of developed single-family lots, multi-family lots, and the commercial/industrial acreage available within the unincorporated areas of the region.

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY 12-FOOT WIDE BY 8-FOOT HIGH OPEN CHANNEL COST ESTIMATE
FISCAL YEAR 2005-06

Item Description ⁽¹⁾	Quantity	Unit Cost	Unit of Measure	Extension	Total Cost
1 Construction Schedule ⁽¹⁾	10	\$ 1,575.91	Man Total Hour	\$ 15,759.10	
2 Implementation of Best Management Practices ⁽¹⁾	100%	\$ 13,319.81	Lump Sum	\$ 13,319.81	
3 Storm Water Pollution Prevention Plan ⁽¹⁾	100%	\$ 11,717.35	Lump Sum	\$ 11,717.35	
4 Restoration of Existing Improvements ⁽¹⁾	100%	\$ 45,070.42	Lump Sum	\$ 45,070.42	
5 Shoring of Open Excavations ⁽²⁾	25,520	\$ 35.38	Cubic Yard	\$ 902,897.60	
6 Office Facilities ⁽¹⁾	100%	\$ 15,466.70	Lump Sum	\$ 15,466.70	
7 Mobilization ⁽¹⁾	100%	\$ 167,499.22	Lump Sum	\$ 167,499.22	
8 Structure Excavation ^(1 & 3)	24,341	\$ 14.26	Cubic Yard	\$ 347,102.66	
9 Asphalt Concrete Pavement ^(1 & 4)	1,569	\$ 100.00	Ton	\$ 156,900.00	
10 Crushed Aggregate Base ^(1 & 5)	1,174	\$ 90.00	Cubic Yard	\$ 105,660.00	
11 12'-0" W x 8'-0" H Rectangular Channel, Sect 1 ⁽⁶⁾	5,280	\$ 572.59	Linear Foot	\$ 3,023,275.20	
12 Chain Link Right of Way Fence, 5' High ⁽⁷⁾	10,560	\$ 13.40	Linear Foot	\$ 141,504.00	
13 Chain Link Channel Wall Fence, 5' High ⁽⁸⁾	10,560	\$ 12.42	Linear Foot	\$ 131,155.20	
14 4' High walk Gate ⁽¹⁾	2	\$ 425.53	Each	\$ 851.06	
15 12' Double Drive Gate ⁽¹⁾	2	\$ 1,034.28	Each	\$ 2,068.56	
Total cost estimate based on one mile stretch					\$ 5,080,246.88
Plus 15% contingency					\$ 762,037.03
Total cost estimate based on one mile stretch plus 15% contingency				(a)	\$ 5,842,283.91
Estimated cost per linear foot = (a) / 5,280					\$ 1,106.49

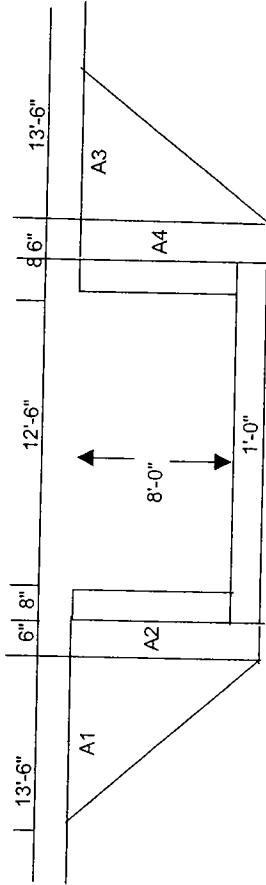
Assumptions made in the calculation of 12' x 8' typical rectangular channel cost per linear foot:

- General slope = 1%.
- 32 miles of open channel with 1% slope capacity
- Flow of water is 1,590 cubic foot per second.
- No utility interference.
- No ground water, health & safety issue included in this estimate

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY 12-FOOT WIDE BY 8-FOOT HIGH OPEN CHANNEL COST ESTIMATE
FISCAL YEAR 2005-06

Footnotes:

- (1) See Schedule J for the unit costs of Construction Schedule, Implementation of BMPs, Stormwater Pollution Prevention plan, Restoration of Existing Improvements, Office Facilities, Mobilization, Structure Excavation, AC Pavement, Crushed Aggregate Base, Chain Link ROW Fence, Chain Link Channel Wall Fences, 4' High Walk Gate, and 12' Double Drive Gate.
- (2) See figure below for the calculation of Total cubic yards for Shoring of Open Excavation:



Area of A1 = $(13.5 \times 9) * 1/2 = 60.75$ square feet

Area of A2 = $(0.5 \times 9) * 1/2 = 4.50$ square feet

Total area of A1 and A2 = $60.75 + 4.50 = 65.25$ square feet

Total area of A1, A2, A3, and A4 = $65.25 * 2 = 130.50$ square feet

$$\boxed{\text{Total cubic yard} = (130.50 \text{ square feet} * 5.280 \text{ feet}) / 27 \text{ feet} = 25.520.00}$$

Unit cost of the Shoring of Open Excavation was based on the average item bid of the Little Dalton Debris Dam Seismic Modifications project:

Item Description	Engineer's Estimate	Low Bidder Item Bid	Average Item Bid	Adjustment Factor	CCI Adjusted Item Bid
Structure Excavation	\$ 10.00	\$ 10.00	\$ 10.00	31.87	1.11 \$ 35.38
Bid Date	Feb-04	(a)			
ENR's CCI for Los Angeles for February 2004	7690.52	(b)			
ENR's CCI for Los Angeles for June 2006	8546.72	©			
Adjustment Factor	1.11	(d) = c / b			

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY 12-FOOT WIDE BY 8-FOOT HIGH OPEN CHANNEL COST ESTIMATE
FISCAL YEAR 2005-06

(3) Total cubic yards for Structure Excavation:

$$\boxed{\text{Total cubic yard} = (13.83 \text{ feet} * 9 \text{ feet} * 5,280 \text{ feet}) / 27 = 24,340.80}$$

(4) Asphalt Concrete Pavement is assumed 4-inch thick and 12 feet wide.

Total cubic feet for 1 mile of asphalt concrete pavement = $(0.33 \text{ foot} * 12 \text{ feet} * 5,280 \text{ feet}) = 20,908.80$

One cubic foot of asphalt concrete pavement required 150 pounds of concrete

$$\boxed{\text{Total tonnage of concrete required for 1 mile of asphalt concrete pavement} = (20,908.80 \text{ cubic feet} * 150 \text{ pounds}) / 2,000 = 1,568.16}$$

(5) Crushed Aggregate Base (CAB) is assumed 6-inch thick and 12 feet wide

$$\boxed{\text{Total cubic yard for 1 mile of CAB} = (0.50 \text{ foot} * 12 \text{ feet} * 5,280 \text{ feet}) / 27 = 1,173.33}$$

(6) See Schedule I for Rectangular Channel cost.

$$\boxed{(7) \text{ Total linear feet for chain link right of way fence} = 5,280 * 2 = 10,560}$$

$$\boxed{(8) \text{ Total linear feet for chain link channel fence wall} = 5,280 * 2 = 10,560}$$

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY CLOSED CONDUIT COST ESTIMATE
FISCAL YEAR 2005-06**

Item Description ⁽¹⁾	Quantity	Unit Cost	Unit of Measure	Extension	Total Cost
1 Construction Schedule ⁽¹⁾	5	\$ 1,575.91	Man Total Hour	\$ 7,879.55	
2 Implementation of Best Management Practices ⁽¹⁾	100%	\$ 13,319.81	Lump Sum	\$ 13,319.81	
3 Storm Water Pollution Prevention Plan ⁽¹⁾	100%	\$ 11,717.35	Lump Sum	\$ 11,717.35	
4 Restoration of Existing Improvements ⁽¹⁾	100%	\$ 45,070.42	Lump Sum	\$ 45,070.42	
5 Shoring of Open Excavations ⁽²⁾	5,280	\$ 61.48	Linear Foot	\$ 324,614.40	
6 Office Facilities ⁽¹⁾	100%	\$ 15,466.70	Lump Sum	\$ 15,466.70	
7 Mobilization ⁽¹⁾	100%	\$ 167,499.22	Lump Sum	\$ 167,499.22	
8 Asphalt Concrete Pavement ^(1 & 3)	1,177	\$ 100.00	Ton	\$ 117,700.00	
9 Crushed Aggregate Base ^(1 & 4)	880	\$ 90.00	Cubic Yard	\$ 79,200.00	
10 72" RCP, 1350D ⁽⁵⁾	5,236	\$ 395.92	Linear Foot	\$ 2,073,037.12	
11 Catch Basin System ⁽⁶⁾	100%	\$ 111,168.88	Lump Sum	\$ 111,168.88	
12 Manhole Per Standard Plan 321 ⁽¹⁾	11	\$ 4,301.00	Each	\$ 47,311.00	
Total cost estimate based on one mile stretch					\$ 3,013,984.45
Plus 15% contingency					\$ 452,087.67
Total cost estimate based on one mile stretch plus 15% contingency				(a)	\$ 3,466,082.12
Estimated cost per linear foot = (a) / 5,280					\$ 656.45

Assumptions made in the calculation of one mile stretch cost of the storm drain are:

- Slope used for Hydraulic Calculation ~ 1%
- Flow of water is 450 cubic feet per second based on 1% slope and project is 22 miles long
- No compacted fill, minor clearing & grubbing
- Permanent resurfacing to be 4" Asphalt Concrete on 6" Crushed Aggregate Base
- No utility interference
- No Right of Way fences
- No ground water encountered; No contaminant soil encountered

Footnotes:

- (1) See Schedule J for the unit costs of Construction Schedule, Implementation of BMPs, Stormwater Pollution Prevention plan, Restoration of Existing Improvements, Office Facilities, Mobilization, AC Pavement, and Crushed Aggregate Base.
- (2) See Schedule H for the unit cost of shoring per linear foot.

(3) Asphalt concrete pavement is assumed 4-inch thick and 9 feet wide.

Total cubic feet for 1 mile of asphalt concrete pavement = (0.33 foot * 9 feet * 5,280 feet) = 15,681.60
One cubic foot of asphalt concrete pavement required 150 pounds of concrete

Total tonnage of concrete required for 1 mile of asphalt concrete pavement = (15,681.60 cubic feet * 150 pounds) / 2,000 = 1,176.12

(4) Crushed Aggregate Base (CAB) is assumed 6-inch thick and 9 feet wide

Total cubic yards for 1 mile of CAB = (0.50 foot * 9 feet * 5,280 feet) / 27 = 880.00

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY CLOSED CONDUIT COST ESTIMATE
FISCAL YEAR 2005-06**

Notes:

- (5) See Schedule G for the unit cost 72" RCP per linear foot.
- (6) See Schedule J for the unit costs of Catch Basin Screen, Manhole per Std Plan 322, Junction Structure, 18" RCP, 21" RCP and 42" RCP which are the components of the Catch Basin System.

Item Description	Quantity	Unit Cost	Unit of Measure	Extension	Total Cost
Catch Basin Screen	6	\$ 5,061.10	Each		\$30,366.60
Manhole per standard plan 322	2	\$ 7,039.10	Each		14,078.20
Junction Structure	4	\$ 1,391.02	Each		5,564.08
18" Reinforced Concrete Pipe	100	\$ 109.19	Linear Foot		10,919.00
21" Reinforced Concrete Pipe	200	\$ 109.92	Linear Foot		21,984.00
42" Reinforced Concrete Pipe	150	\$ 188.38	Linear Foot		28,257.00
Total					\$111,168.88

(7) Unit cost of the Manhole per Std Plan 321 was based on the low bidder item bid of the Ninth Avenue Drain

Item Description	Engineer's Estimate	Low Bidder Item Bid	Average Item Bid	Adjustment Factor	CCI Adjusted Item Bid
Manhole per Std Plan 321	\$ 3,738.00	\$ 3,910.00	\$ 3,686.00		\$ 4,301.00
Bid Date of Nine Avenue Drain	May-04	(a)			
ENR's CCI for Los Angeles for May 2004	7803.52	(b)			
ENR's CCI for Los Angeles for June 2006	8546.72	(c)			
Adjustment Factor	1.10	(d) = c / b			

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY DETENTION/RETENTION BASIN COST ESTIMATE
FISCAL YEAR 2005-06**

Right of Way Acquisition Cost ⁽¹⁾					
Item Description	Quantity	Unit of Measure	Unit Cost	Extension	Total Cost
Area required per basin	50 Acre	\$ 55,000.00	\$ 2,750,000.00		\$ 2,750,000.00
Excavation Cost ⁽²⁾					
Item Description	Volume (cubic feet)	Volume (cubic yd)	Unit Cost per Cubic Yard	Extension	Total Cost
Excavation cost for basin with dimension =20' x 1,800' x 800'	28,800,000	1,066,666.67	\$ 11.83	\$ 12,618,666.67	
					\$ 12,618,666.67
Infrastructure Costs ⁽³⁾					
Item Description	Quantity	Unit of Measure	Unit Cost	Extension	Total Cost
Access road/ramp ^(a)	5,126 Ton	\$ 100.00	\$ 512,600.00		
Perimeter Wall ^(b)	36,000 Square foot	\$ 52.37	\$ 1,885,320.00		
Associated piping, valves, pumping ^(c)	1,000 Linear foot	\$ 656.45	\$ 656,450.00		
Landscaping ^(d)	1 Lump Sum	\$ 380,236.98	\$ 380,236.98		
Irrigation ^(e)	1 Lump Sum	\$ 241,740.07	\$ 241,740.07		
					\$ 3,676,347.05
Other Costs ⁽⁴⁾					
Item Description	Quantity	Unit of Measure	Unit Cost	Extension	Total Cost
Construction Schedule	5 Man Total Hours	\$ 1,575.91	\$ 7,879.55		
Implementation of Best Management Practices	100% Lump Sum	\$ 13,319.81	\$ 13,319.81		
Storm Water Pollution Prevention Plan	100% Lump Sum	\$ 11,717.35	\$ 11,717.35		
Restoration of Existing Improvements	100% Lump Sum	\$ 45,070.42	\$ 45,070.42		
Office Facility	100% Lump Sum	\$ 15,466.70	\$ 15,466.70		
Mobilization	100% Lump Sum	\$ 167,499.22	\$ 167,499.22		
					\$ 260,933.05
Total estimated cost for one detention/retention basin					\$ 19,305,966.77
Plus 15% contingency					\$ 2,895,895.02
Total estimated cost for one detention/retention basin plus 15% contingency					\$ 22,201,861.78

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY DETENTION/RETENTION BASIN COST ESTIMATE
FISCAL YEAR 2005-06**

Footnotes:

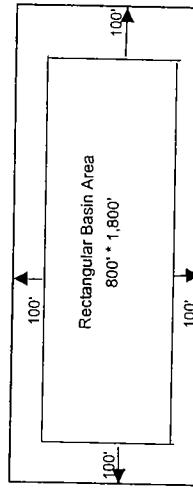
(1) A search in the Palmdale/Lancaster area for open land plots at least 40 acres in size produced a high end cost of \$55,000/acre. Geologic conditions and drainage needs constrain the location of the right of way acquisitions.

(2) Excavation cost is for basin with depth = 20 feet, length = 1,800 feet, and width = 800 feet. Volume Removed = Basin Width*Basin Length*Basin Depth
The excavation unit cost is based on the average item bid for Vernon Channel - Fieldbrook Debris Basin adjusted with Engineering News Record's (ENR's) Construction Cost Index (CCI) for Los Angeles for June 2006. Below shown the calculation of excavation unit cost:

Bid date	May 2001	(a)
ENR's CCI for Los Angeles for December 2001 (s) =	7226.92	(b)
ENR's CCI for Los Angeles for June 2006 =	8546.72	(d)
Engineer's Estimate for unclassified excavation cost per cubic yard =	\$0.00	
Low Bidder Item Bid for unclassified excavation cost per cubic yard (e) =	\$10.00	(e)
Average Item Bid for unclassified excavation cost per cubic yard =	\$8.35	
Adjustment Factor =	1.18	(f) = d / b
CCI adjusted item bid for unclassified excavation cost per cubic yard =	\$11.83	(g) = e * f

(3) The following assumptions are used in the calculation for various infrastructure costs:

(a) The access roads within the 2,000 feet by 1,000 feet basin are assumed to be 6-inch thick and 20 feet wide and the access ramp is assumed at 200 * 100 square feet. See Schedule J for the unit cost of the AC Pavement.



Total cubic feet for the access roads and ramp = $((2,000' * 20') + (2,000' * 20') + (960' * 20') + (960' * 20')) * 0.5'$

Total cubic feet for the access roads and ramp = 69,200

Total cubic yard for the access roads and ramp = 2,563

Total tonnage of asphalt concrete needed * = 5,126

* one cubic yard required 2 tons of asphalt concrete

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY DETENTION/RETENTION BASIN COST ESTIMATE
FISCAL YEAR 2005-06

Footnotes:

- (b) The perimeter wall unit cost is based on the average item bid for 126th Street Et Al. adjusted with Engineering News Record's (ENR's) Construction Cost Index (CCI) for Los Angeles for June 2006. Below shown the calculation of perimeter wall unit cost.

Bid date	April 2002	(a)
ENR's CCI for Los Angeles for December 2002 (s) =	7402.75	(b)
ENR's CCI for Los Angeles for June 2006 =	8546.72	(d)
Engineer's Estimate for unclassified perimeter wall per square foot =	\$8.00	
Low Bidder Item Bid for unclassified perimeter wall per square foot =	\$14.00	
Average Item Bid for unclassified perimeter wall per square foot (s) =	\$45.36	(e)
Adjustment Factor =	1.15	(f) = d / b
Adjusted average item bid for unclassified excavation cost per cubic yard =	\$52.37	(g) = e * f

The wall around the basin is assumed with height of 6 feet.

Total area for the perimeter wall (square feet) $((2,000' * 2 + 1,000' * 2') * 6'$

Total area for the perimeter wall (square feet) = 36,000

- (c) A basin with dimension of 1,000 by 2,000 feet will require 1,000 feet of pipe to bring water in and out of the basin. Unit cost @ \$657.01 is the weighted average item bids of the following six projects adjusted with ENR's CCI for Los Angeles as of June 2006. See Schedule D for the calculation of unit cost.

Fairplex Drain
 Ward Channel Invert & Connector Pipe Repairs
 Altadena System Lincoln Debris Basin Enlargement
 Beverly Pico Drain, Unit 2
 Vernon Channel - Fieldbrook Debris Basin
 Busby Drain & Catch Contract 7643

- (d) Average item bid of \$377,500 for Paseo Del Rio San Gabriel Coastal Basin Spreading Gorunds, Phase 2, Multituse Improvement adjusted with ENR's CCI for Los Angeles for June 2006 is used due to the said project had similar size of the proposed basin. Below shown the calculation of the adjusted landscapin cost.

Bid Date	September 2005	(a)
ENR's CCI for Los Angeles for September 2005 =	8485.20	(b)
ENR's CCI for Los Angeles for June 2006 =	8546.72	(d)
Engineer's Estimate for landscaping =	\$257,780	
Low Bidder Item Bid for landscaping =	\$325,000	
Average Item Bid for landscaping (s) =	\$377,500	(e)
Adjustment Factor =	1.01	(f) = d / b
Adjusted average item bid for landscaping =	\$380,236.98	(g) = e * f

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY DETENTION/RETENTION BASIN COST ESTIMATE
FISCAL YEAR 2005-06

Footnotes:

- (e) Average item bid of \$240,000 for Paseo Del Rio San Gabriel Coastal Basin Spreading Grounds, Phase 2, Multiuse Improvement adjusted with ENR's CCI for Los Angeles for June 2006 is used due to the said project had similar size of the proposed basin. Below shown the calculation of the adjusted irrigation cost:

Bid Date			
ENR's CCI for Los Angeles for September 2005 =		(a)	
ENR's CCI for Los Angeles for June 2006 =	8485.20	(b)	
Engineer's Estimate for irrigation =	8546.72	(d)	
Low Bidder Item Bid for irrigation =	\$156,612		
Average Item Bid for irrigation (e) =	\$225,000		
Adjustment Factor =	\$240,000	(e)	
Adjusted average item bid for irrigation =	1.01	(f) = d / b	
	\$241,740.07	(g) = e * f	

- (4) See Schedule J for the unit costs of Construction Schedule, Implementation of BMPs, Stormwater Pollution Plan, Restoration of Existing Improvement, Office Facilities, and Mobilization.

- (5) Used Engineering News Record (ENR) published Construction Cost Index (CCI) for Los Angeles to adjust the base price. ENR traditionally published the CCI in December on a year to year basis. Due to construction costs increased significantly in recent year, ENR began published CCI on a month to month basis since January 2004. CCI for December will be used for projects with bid date prior 2004.

- (6) Antelope Valley is a region in which various assumptions are required at this stage, including the location, size, and costs of various drainage need for the associated future developments. As such, the greatest amount among the Engineer's Estimate, Low Bidder Item Bid, and Low Bidder Item Bid is used as the base price to determine the CCI adjusted unit cost.

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN
NUMBER OF POTENTIAL SINGLE-FAMILY LOTS, MULTI-FAMILY LOTS, AND
THE COMMERCIAL/INDUSTRIAL ACREAGE WITHIN THE UNINCORPORATED AREAS**

SINGLE-FAMILY (1)

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN
NUMBER OF POTENTIAL SINGLE-FAMILY LOTS, MULTI-FAMILY LOTS, AND
THE COMMERCIAL/INDUSTRIAL ACREAGE WITHIN THE UNINCORPORATED AREAS**

MULTI-FAMILY (RESIDENTIAL) UNITS ⁽¹⁾

NUMBER	ZONE	Sum_AREA (ft ²)	(A)	(B) = A / 43,560	(C)	(D)	(E)	(F) = A / E
27	R-3	3836498		88	Limited multiple residence	Apartment Houses	1450	2645
28	R-3-20U	3131608		72	Limited multiple residence	Apartment Houses	1450	2159
29	R-3-P	517589		12	Limited multiple residence	Apartment Houses	1450	
60	R-2	6318		0	Two-family residence	Duplex	1450	356
61	R-2-15000	191273		4	Two-family residence	Duplex	2500	2
62	R-2-20000	668478		15	Two-family residence	Duplex	15000	12
Multi-Family Units						Duplex	20000	33
Totals (ft²)		8,351,763						
Totals (acre)		192						
Totals (mi²)		0.30						
				Number of Multi-Family Residences				5,207

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN
NUMBER OF POTENTIAL SINGLE-FAMILY LOTS, MULTI-FAMILY LOTS, AND
THE COMMERCIAL/INDUSTRIAL ACREAGE WITHIN THE UNINCORPORATED AREAS**

COMMERCIAL/INDUSTRIAL⁽¹⁾

NUMBER	ZONE	Sum AREA (ft ²)	(A)	(B) = A / 43,560	Sum AREA (acre)	Min_Z_DESC	(C)	(D)	Permitted Uses	(E)	MIN	SA_MIN (ft ² /ft ²)
2	C-H	466698		11	Commercial highway						1	466698
3	CPD	473136		11	Commercial planned development						5000	
4	C-R	14010178		322	Commercial recreation						217800	
13	M-2	29251291		672	Heavy manufacturing						1	29251291
14	M-2-DP	722392		17	Heavy manufacturing						1	722392
15	M-2.5	73530145		1688	Heavy manufacturing						1	73530145
25	M-1	9778818		224	Light manufacturing						1	9778818
26	M-1-DP	198206		5	Light manufacturing						1	198206
30	C-2	3364280		77	Neighborhood commercial						1	3364280
31	C-2-DP	1376720		32	Neighborhood commercial						1	1376720
51	C-1	797112		18	Restricted business						1	797112
52	C-1-DP	51011		1	Restricted business						1	51011
53	M-1.5	121101693		2780	Restricted heavy manufacturing						1	121101693
63	C-3	20099994		461	Unlimited commercial						1	20099994
64	C-3-DP	244182		6	Unlimited commercial						1	244182
65	C-3-U/C	398382		9	Unlimited commercial						1	398382
Commercial/Industrial												
Totals (ft²)		275,864,236										
Totals (acre)		6,333										
Totals (miles²)		10										

Footnote:

- (1) Public Works' Mapping and Property Management Division produced a digital version of the 1987 Antelope Valley Drainage Study map, and used the Los Angeles County Department of Regional Planning's Zoning Ordinance Summary to develop the above tables depicting undeveloped unincorporated area and the planned zoning for single-family lots, multi-family lots, and commercial/industrial acreages.

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY 72-INCH REINFORCED CONCRETE PIPE ESTIMATE
EISCA, YEAR 2005-06**

Construction Cost Index (CCI) Adjusted Item Bid Callout

Weighted Average (CCI) Adjusted Item Bid Calculation

		(A)	(B)	(C)	(D)	(E) = B'C	(F)	(H) = G / E
Project Name	Description	Trench Depth	Length	Unit of Measure	Trench Depth *	Adjusted Item Bid	Total Cost	Weighted Average Item Bid
Fairplex Drain	72" RCP, 1450 D	16.00	455.00	Linear Foot	7.280	\$ 433.66	\$ 3,167,073.17	
Ward Channel Invert & Connector Pipe Repairs	72" RCP, 0800 D	10.50	16.00	Linear Foot	16.80	\$ 2,320.58	\$ 389,956.72	
Aquatena System Lincoln Debris Basin Enlargement	72" RCP, 2000 D	16.00	157.00	Linear Foot	2.512.00	\$ 345.21	\$ 867,155.97	
Beverly Pico Drain, Unit 2	72" RCP, 0850 D	8.00	1,614.00	Linear Foot	12.912.00	\$ 340.71	\$ 4,398,294.19	
Emmon Channel - Fieldbrook Debris Basin	72" RCP, 1550 D	22.00	84.00	Linear Foot	1.848.00	\$ 412.74	\$ 762,734.91	
Busby Drain & Cash Contract #7643	72" RCP, 1400 D	20.00	726.00	Linear Foot	4.104.46	\$ 394.20	\$ 1,553,062.45	
Total							\$ 395,927	

Assumptions

- 1) Trench depth determined by "Load Table" per Los Angeles County Flood Control District "Structural Design Manual" DWG No. 2-D213.3.
1) Used Engineering News Record (ENR) published Construction Cost Index (CCI) for Los Angeles to adjust the base price. ENR traditionally published the CCI on a year to year basis. Due to construction costs significantly increased in recent year, ENR began published CCI on a month to month basis since January 2004. CCI for December will be used for project with bid date prior 2004.
1) Antelope Valley is a region in which various assumptions are required at this stage, including the location, size, and costs of various drainage developments. As such, the greatest amount among the Engineer's Estimate, Low Bidder Item Bid, and Low Bidder Item Bid + 7% RCP cost.

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY SHORING COST ESTIMATE
FISCAL YEAR 2005-06**

Project Name	Description	Trench Depth ⁽¹⁾	Length	Unit of Measure	Trench Depth * Length	Trench Depth * Length * 2
Fairplex Drain	24" RCP, 2000 D	11.00	511.00	Linear Foot	5,621.00	11,242.00
Fairplex Drain	18" RCP, 2000 D	10.50	111.00	Linear Foot	1,165.50	2,331.00
Fairplex Drain	36" RCP, 2000 D	13.00	579.00	Linear Foot	7,527.00	15,054.00
Fairplex Drain	42" RCP, 1700 D	13.50	937.00	Linear Foot	12,649.50	25,299.00
Fairplex Drain	48" RCP, 1700 D	14.00	509.00	Linear Foot	7,126.00	14,252.00
Fairplex Drain	54" RCP, 1600 D	14.50	1,498.00	Linear Foot	21,721.00	43,442.00
Fairplex Drain	60" RCP, 1600 D	15.00	10.00	Linear Foot	150.00	300.00
Fairplex Drain	66" RCP, 1500 D	15.50	487.00	Linear Foot	7,548.50	15,097.00
Fairplex Drain	72" RCP, 1450 D	16.00	455.00	Linear Foot	7,280.00	14,560.00
Fairplex Drain	30" RCP, 2000 D	12.50	668.00	Linear Foot	8,350.00	16,700.00
Fairplex Drain	90" Rubber Gasketed RCP, 1400 D	17.50	230.00	Linear Foot	4,025.00	8,050.00
Fairplex Drain	78" Rubber Gasketed RCP, 1450 D	16.50	959.00	Linear Foot	15,823.50	31,647.00
Fairplex Drain	60" Rubber Gasketed RCP, 1600 D	15.00	138.00	Linear Foot	2,070.00	4,140.00
Total					101,057.00	202,114.00

Calculation of Average Shoring per Linear Foot for Fairplex Drain Project

Shoring of Open Excavations ⁽²⁾

Engineer's Estimate

Low Bidder Item Bid

Average Item Bid

Total Shoring Area

Average Shoring per Square Foot

Bid Date

Engineering News Record (ENR's) Construction Cost Index (CCI) for Los Angeles for June 2004

ENR's CCI for Los Angeles for June 2006

Adjustment Factor

CCI Adjusted Average Shoring per Linear Foot

\$222,000.00	
\$494,300.00	
\$716,716.70	
202,114.00	
(a)	
(b)	
(d) = a/b	
\$3.55	
Juni-04	
7843.85	
8546.72	
(e)	
(f)	
(g) = f/e	
1.09	
(h) = d*g	
\$3.86	

Project Name	Description	Trench Depth	Length	Unit of Measure	Trench Depth * Length	Trench Depth * Length * 2
Ward Channel Invert & Connector Pipe Repairs	72" RCP, 0800 D	10.50	16.00	Linear Foot	168.00	336.00

Calculation of Average Shoring per Linear Foot for Ward Channel Invert & Connector Pipe Repairs Project

Shoring of Open Excavations ⁽²⁾

Engineer's Estimate

Low Bidder Item Bid

Average Item Bid

Total Shoring Area

Average Shoring per Square Foot

Bid Date

ENR's CCI for Los Angeles for December 2003 ⁽³⁾

ENR's CCI for Los Angeles for June 2006

Adjustment Factor

CCI Adjusted Average Shoring per Linear Foot

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTLOPE VALLEY SHORING COST ESTIMATE
FISCAL YEAR 2005-06**

Project Name	(A)	(B)	(C)	(D)	(E) = B*C	(F) = 2*E
Description	Trench Depth	Length	Unit of Measure	Trench Depth *	Trench Depth *	Trench Depth *
Altadena System Lincoln Debris Basin Enlargement	72" RCP, 2000 D	16.00	157.00 Linear Foot	2,512.00	5,024.00	
Altadena System Lincoln Debris Basin Enlargement	36" RCP, 2000 D	13.00	108.00 Linear Foot	1,404.00	2,808.00	
Altadena System Lincoln Debris Basin Enlargement	24" RCP, 2000 D	12.00	127.00 Linear Foot	1,524.00	3,048.00	
Total				5,440.00	10,880.00	

Calculation of Average Shoring per Linear Foot for Altadena System Lincoln Debris Basin Enlargement Project

Shoring of Open Excavations (2)

Engineer's Estimate

Low Bidder Item Bid

Average Item Bid

Total Shoring Area

Average Shoring per Square Foot

Bid Date

ENR's CCI for Los Angeles for December 2002 (3)

ENR's CCI for Los Angeles for June 2006

Adjustment Factor

CCI Adjusted Average Shoring per Linear Foot

(a) \$9,000.00
 (b) \$1,000.00
 (c) \$4,475.10
 (d) 10,880.00
 (e) \$0.83
 (f) Apr-02
 (g) 7422.75
 (h) 8546.72
 (i) 1.15
 (j) \$0.96

Project Name	(A)	(B)	(C)	(D)	(E) = B*C	(F) = 2*E
Description	Trench Depth	Length	Unit of Measure	Trench Depth *	Trench Depth *	Trench Depth *
Beverly Pico Drain, Unit 2	18" RCP, 2000 D	10.50	146.00 Linear Foot	1,533.00	3,066.00	
Beverly Pico Drain, Unit 2	54" RCP, 1100 D	8.75	43.00 Linear Foot	376.25	752.50	
Beverly Pico Drain, Unit 2	72" RCP, 0850 D	8.00	1,614.00 Linear Foot	12,912.00	25,824.00	
Total				14,821.25	29,642.50	

Calculation of Average Shoring per Linear Foot for Beverly Pico Drain, Unit 2 Project

Shoring of Open Excavations (2)

Engineer's Estimate

Low Bidder Item Bid

Average Item Bid

Total Shoring Area

Average Shoring per Square Foot

Bid Date

ENR's CCI for Los Angeles for December 2001 (3)

ENR's CCI for Los Angeles for June 2006

Adjustment Factor

CCI Adjusted Average Shoring per Linear Foot

(a) \$0.00
 (b) \$39,997.35
 (c) \$65,344.48
 (d) 29,642.50
 (e) \$2.20
 (f) Jun-01
 (g) 7226.92
 (h) 8546.72
 (i) 1.18
 (j) \$2.61

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTLOPE VALLEY SHORING COST ESTIMATE
FISCAL YEAR 2005-06**

Project Name	Description	Trench Depth	Length	Unit of Measure	Trench Depth *Length	Trench Depth * Length * 2
(A)	(B)	(C)	(D)	(E) = B*C	(F) = 2*E	
Vernon Channel - Fieldbrook Debris Basin	18" RCP 2000 D	10.50	40.00	Linear Foot	420.00	840.00
Vernon Channel - Fieldbrook Debris Basin	42" RCP 1500 D	8.50	44.00	Linear Foot	374.00	748.00
Vernon Channel - Fieldbrook Debris Basin	72" RCP 1550 D	22.00	84.00	Linear Foot	1,848.00	3,696.00
Total					2,642.00	5,284.00

Calculation of Average Shoring per Linear Foot for Vernon Channel - Fieldbrook Debris Basin Project

Shoring of Open Excavations (2)	\$0.00
Engineer's Estimate	
Low Bidder Item Bid	\$14,800.00
Average Item Bid	\$12,560.00
Total Shoring Area	5,284.00
Average Shoring per Square Foot	\$2.80
Bid Date	May-01
ENR's CCI for Los Angeles for December 2001 (3)	7226.92
ENR's CCI for Los Angeles for June 2006	8546.72
Adjustment Factor	1.18
CCI Adjusted Average Shoring per Linear Foot	\$3.31

Project Name	Description	Trench Depth	Length	Unit of Measure	Trench Depth *Length	Trench Depth * Length * 2
(A)	(B)	(C)	(D)	(E) = B*C	(F) = 2*E	
Busby Drain and Cash Contract 7643	24" RCP, 2250 D and Less	12.00	238.00	Linear Foot	2,856.00	5,712.00
Busby Drain and Cash Contract 7643	18" RCP, 2250 D and Less	11.50	1,204.00	Linear Foot	13,846.00	27,692.00
Busby Drain and Cash Contract 7643	36" RCP, 2000 D	13.00	211.00	Linear Foot	2,743.00	5,486.00
Busby Drain and Cash Contract 7643	48" RCP, 1700 D	14.00	85.00	Linear Foot	1,190.00	2,380.00
Busby Drain and Cash Contract 7643	48" RCP, 1500 D	13.00	784.00	Linear Foot	10,192.00	20,384.00
Busby Drain and Cash Contract 7643	48" RCP, 1400 D	17.00	991.00	Linear Foot	16,847.00	33,694.00
Busby Drain and Cash Contract 7643	42" RCP, 1700 D	13.50	486.00	Linear Foot	6,561.00	13,122.00
Busby Drain and Cash Contract 7643	78" RCP, 1550 D	22.50	495.00	Linear Foot	11,137.50	22,275.00
Busby Drain and Cash Contract 7643	78" RCP, 1250 D	18.50	1,064.00	Linear Foot	19,684.00	39,368.00
Busby Drain and Cash Contract 7643	78" RCP, 0900 D	10.50	495.00	Linear Foot	5,197.50	10,395.00
Busby Drain and Cash Contract 7643	72" RCP, 1400 D	20.00	726.00	Linear Foot	14,520.00	29,040.00
Total					104,774.00	209,548.00

Calculation of Average Shoring per Linear Foot for Busby Drain and Cash Contract 7643 Project

Shoring of Open Excavations (2)	\$0.00
Engineer's Estimate	\$100,000.00
Low Bidder Item Bid	\$165,662.62
Average Item Bid	209,548.00
Total Shoring Area	\$0.81
Bid Date	Jun-01
ENR's CCI for Los Angeles for December 2001 (3)	7226.92
ENR's CCI for Los Angeles for June 2006	8546.72
Adjustment Factor	1.18
CCI Adjusted Average Shoring per Linear Foot	\$0.96

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY SHORING COST ESTIMATE
FISCAL YEAR 2005-06**

Project Name	Total Trench Depth * Length * 2	CCL Adjusted Average Shoring Cost per Linear Foot	Total CCL Adjusted Shoring Cost	(D) = A*B	(E) = D/A
				(B)	(C) = B/C
Fairplex Drain	20'114.00	\$3.86	\$780,940.09		
Ward Channel Invert & Connector Pipe Repairs	336.00	\$23.05	\$7,744.71		
Alladena System Lincoln Debris Basin Enlargement	10,880.00	\$0.96	\$10,350.80		
Beverly Pico Drain, Unit 2	25,642.50	\$2.61	\$77,277.87		
Vernon Channel - Fieldbrook Debris Basin	5,284.00	\$3.31	\$17,502.82		
Busby Drain & Catch Contract 7643	205,548.00	\$0.96	\$200,546.87		
Total	457,804.50		\$1,094,503.16		\$2.39

Average Trench Depth Calculation

Project Name	Description	Trench Depth	Length	Unit of Measure	(E) = B*C	(F) = E/C
					(B)	
Fairplex Drain	72" RCP, 1450 D	16.00	455.00	Linear Foot	7,280.00	
Ward Channel Invert & Connector Pipe Repairs	72" RCP, 0800 D	10.50	16.00	Linear Foot	168.00	
Alladena System Lincoln Debris Basin Enlargement	72" RCP, 2000 D	16.00	157.00	Linear Foot	2,512.00	
Beverly Pico Drain, Unit 2	72" RCP, 0850 D	8.00	1,614.00	Linear Foot	12,912.00	
Vernon Channel - Fieldbrook Debris Basin	72" RCP, 1550 D	22.00	84.00	Linear Foot	1,848.00	
Busby Drain & Catch Contract 7643	72" RCP, 1400 D	20.00	14,520.00	Linear Foot		
Total			3,052		39,240.00	12.36

CCL Adjusted Shoring Cost per Square Foot * Average Trench Depth * 2

Shoring Cost per Linear Foot =	\$2.39 * 12.86 LF * 2
Shoring Cost per Linear Foot =	\$61.48

Footnotes:

(1) Trench depth determined by "D Load Table" per Los Angeles County Flood Control District "Structural Design Manual" DMG No. 2-D213-3.

(2) Antelope Valley is a region in which various assumptions are required at this stage, including the location, size, and costs of various drainage need for the associated future developments. As such, the greatest amount among the Engineer's Estimate, Low Bidder Item Bid, and Low Bidder Item Bid is used as the base price to determine shoring cost.

(3) Used Engineering News Record (ENR) published Construction Cost Index (CCI) for Los Angeles to adjust the base price. ENR traditionally published the CCI on a year to year basis. Due to construction costs increased significantly in recent year, ENR began published CCI on a month to month basis since January 2004. CCI for December will be used for project projects with bid date prior 2004.

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELope VALLEY RECTANGULAR CHANNEL COST ESTIMATE
FISCAL YEAR 2005-06**

Project Name	Description	Quantity	Unit of Measure	Total Quantity of Concrete (Cubic Yard)	Engineer's Estimate Per Linear Foot	Low Bidder Item Bid Per Linear Foot	Average Item Bid Per Linear Foot	(F)	(G)	(H) = ((C * Greatest of F) / E) * G
Buena Vista Channel	08'-00" W * 09'-06" H RCB, SECT 07	0.92	32.00 Linear Foot	32.20	\$ 526.00	\$ 690.83	\$ 690.83	1.13	\$ 848.52	
Buena Vista Channel	07'-03" W * 04'-06" H RCB, SECT 06	0.70	32.00 Linear Foot	22.40	\$ 358.00	\$ 470.00	\$ 552.17	1.13	\$ 891.36	
Buena Vista Channel	09'-00" W * 10'-00" H DBL RCB, SECT 05	1.70	12.00 Linear Foot	20.40	\$ 1,000.00	\$ 1,100.00	\$ 1,399.50	1.13	\$ 930.26	
Buena Vista Channel (2)	09'-00" W * 08'-00" H DBL RCB, SECT 08	2.15	935.00 Linear Foot	2,010.25	\$ 1,154.00	\$ 560.00	\$ 1,359.00	1.13	\$ 714.27	

Calculation of Adjustment Factor for Buena Vista Channel

Bid Date: May-03
 Engineering News Record (ENR's) Construction Cost Index (CCI) for Los Angeles for June 2004
 ENR's CCI for Los Angeles for June 2006
 Adjustment Factor: 1.13
 (d) = cb

Project Name	Description	Quantity	Unit of Measure	Total Quantity of Concrete (Cubic Yard)	Engineer's Estimate Per Linear Foot	Low Bidder Item Bid Per Linear Foot	Average Item Bid Per Linear Foot	(F)	(G)	(H) = ((C * Greatest of F) / E) * G
Ninth Avenue Drain	08'-00" W * 02'-00" H RCB, SECT 02	0.68	381.00 Linear Foot	259.08	\$ 418.00	\$ 301.59	\$ 430.67	1.10	\$ 666.67	
Ninth Avenue Drain	08'-00" W * 03'-00" H RCB, SECT 01	0.56	20.00 Linear Foot	11.20	\$ 520.00	\$ 604.35	\$ 700.44	1.10	\$ 1,375.86	

Calculation of Adjustment Factor for Ninth Avenue Drain

Bid Date: May-04
 ENR's CCI for Los Angeles for May 2004
 ENR's CCI for Los Angeles for June 2006
 Adjustment Factor: 1.10
 (d) = cb

Project Name	Description	Quantity	Unit of Measure	Total Quantity of Concrete (Cubic Yard)	Engineer's Estimate Per Linear Foot	Low Bidder Item Bid Per Linear Foot	Average Item Bid Per Linear Foot	(F)	(G)	(H) = ((C * Greatest of F) / E) * G
Project No. 64, Eastern Avenue Storm Drain	07'-10" W * 05'-00" H RCB	0.99	58.00 Linear Foot	57.42	\$ 320.00	\$ 600.00	\$ 906.63	1.03	\$ 943.26	
Project No. 64, Eastern Avenue Storm Drain	08'-06" W * 05'-00" H RCB	1.04	2,053.00 Linear Foot	2,135.12	\$ 350.00	\$ 500.00	\$ 565.63	1.03	\$ 590.00	

Calculation of Adjustment Factor for Project No. 64, Eastern Avenue Storm Drain

Bid Date: Jun-05
 ENR's CCI for Los Angeles for June 2005
 ENR's CCI for Los Angeles for June 2006
 Adjustment Factor: 1.03
 (d) = cb

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY RECTANGULAR CHANNEL COST ESTIMATE
FISCAL YEAR 2005-06**

Project Name	Description	(A)	(B)	(C)	(D)	(E) = B/C	(F)	(G)
		Cubic Yard Per Linear Foot	Quantity	Unit of Measure	Total Quantity of Concrete (Cubic Yard)	Engineer's Estimate Per Linear Foot	Low Bidder Item Bid Per Linear Foot	(H) = ((C / E) G of F) / E' G Rectangular Channel Concrete Cost Per Cubic Yard (n)
Beverly Pico Drain, Unit 2	10'-00" W * 02'-06" H RCB, SECT 10	0.85	10.00	Linear Foot	8.50	\$ -	\$ 1,000.00	\$ 868.59 1.18 \$ 1,388.24

Calculation of Adjustment Factor for Beverly Pico Drain, Unit 2

Bid Date Jun-01
ENR's CCI for Los Angeles for December 2001 (a)
ENR's CCI for Los Angeles for June 2006 (b)
Adjustment Factor 1.18 (c)
(d) = cb

Calculation of Concrete Cost per Cubic Yard Weighted by Volume

Project Name	Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)
		Quantity of Concrete (Cubic Yard)	Concrete Cost Per Cubic Yard	Total Rectangular Channel Concrete Cost	Weighted By Volume Concrete Cost Per Cubic Yard			
Buena Vista Channel	08'-00" W * 09'-06" H RCB, SECT 07	32.20	\$845.52	\$27,322.33				
Buena Vista Channel	07'-03" W * 04'-06" H RCB, SECT 06	22.40	891.36	19,366.47				
Buena Vista Channel	09'-00" W * 10'-00" H DBL RCB, SECT 05	20.40	930.26	18,977.22				
Ninth Avenue Drain	09'-00" W * 08'-00" H DBL RCB, SECT 08	2.010.25	714.27	1,435.851.45				
Ninth Avenue Drain	08'-00" W * 02'-00" H RCB, SECT 02	259.08	696.67	180,933.80				
Project No. 64, Eastern Avenue Storm Drain	06'-00" W * 03'-00" H RCB, SECT 01	11.20	1,375.86	15,409.68				
Project No. 64, Eastern Avenue Storm Drain	07'-10" W * 05'-00" H RCB	57.42	943.26	54,162.08				
Beverly Pico Drain, Unit 2	08'-05" W * 05'-12" H RCB	2,135.12	580.00	1,238,367.34				
Total	10'-00" W * 02'-06" H RCB, SECT 10	8.50	1,388.24	11,800.00				
		4,556.57	\$3,002,350.36	\$658.91				

Per Design Division, one linear foot require 0.79 cubic yard of concrete

Concrete Cost per linear foot = \$658.91 * 0.79
Concrete Cost per linear foot = \$520.54
Assume 10% Increase
Concrete Cost per linear foot with 10 % increment = \$520.54 * 1.1
Concrete Cost per linear foot with 10 % increment (n) = \$572.59

Footnotes:

- (1) Antelope Valley is a region in which various assumptions are required at this stage, including the location, size, and costs of various drainage need for the associated future developments. As such, the greatest amount among the Engineer's Estimate, Low Bidder Item Bid, and Low Bidder Item Bid is used as the base price to determine rectangular channel concrete cost per cubic yard.
- (2) The Average Item Bid for some reason was bid at half the typical costs. Thus, Design multiplied the cost by 2 to be within cost proximities.
- (3) Used Engineering News Record (ENR) published Construction Cost Index (CCI) for Los Angeles to adjust the base price. ENR traditionally published the CCI on a year to year basis. Due to construction costs significantly increased in recent years, ENR began publishing CCI on a month to month basis since January 2004. CCI for December will be used for project with bid date prior 2004.
- (4) Past bid history projects had different amounts of concrete amounts per linear feet. Such different amounts mean there are different volumes of concrete in cubic yard per linear foot. Hence, a weighted average volume is required to determine average cost per cubic yard for the past bid history projects, and then be converted into an average cost per linear foot.

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN UNIT COST ESTIMATE**

Cost Estimate Type	Name of Project (A)	Bid Date (B)	Average Item Bid (C) ⁽¹⁾	Engineer's Estimate (D) ⁽¹⁾	Low Bidder Item Bid (E) ⁽¹⁾	Quantity (F)	CCI @ Bid Date (G) ⁽²⁾	CCI @ June 2006 (H)	Adjustment Factor (I) = H / G	Greatest of Item Cost C, D or E Adjusted With Adjustment Factor (J) = C or D or E * I	Amount (K) = F * J	Weighted Average Unit Cost (L) = K / F
Construction Schedule	Buena Vista Channel Ninth Avenue Drain Project No. 64, Eastern Avenue Storm Drain	May-03 \$ 698.03 \$ 925.00 \$ 500.00	\$ 816.67 \$ 900.00 \$ 498.33	\$ 2,300.00 9	10	7531.77 7803.52	8546.72 8546.72	1.13 1.10	\$ 2,609.94 \$ 1,013.10	\$ 26,099.38 \$ 9,117.87		
Total												
Implementation of BMPs	Buena Vista Channel Gratian Street Drain Puddingstone Channel Invert Access Ramp Liberty Canyon Channel Access Ramp @ PD 572 Ninth Avenue Drain Project No. 64, Eastern Avenue Storm Drain Beverly Pico Drain, Unit 2	May-03 \$ 1,641.67 \$ 4,000.00 \$ 3,639.29 \$ 4,172.77 \$ 14,323.80 \$ 18,250.00 \$ 4,639.82	\$ 15,150.00 \$ 3,000.00 \$ 500.00 \$ 2,000.00 \$ 13,000.00 \$ 10,000.00 \$ -	\$ 10,000.00 \$ 30,900.00 \$ 500.00 \$ 1,000.00 \$ 15,238.00 \$ 3,000.00 \$ 1,000.00	1 1 1 1 1 1 1	7531.77 7402.75 7531.77 7843.85 7803.52 8289.28 7226.92	8546.72 8546.72 8546.72 8546.72 8546.72 8546.72 8546.72	1.13 1.15 1.13 1.09 1.10 1.03 1.18	\$ 35,063.96 \$ 3,463.60 \$ 9,134.78 \$ 4,546.68 \$ 16,689.25 \$ 18,794.12 \$ 5,546.29	\$ 35,063.96 \$ 3,463.60 \$ 9,134.78 \$ 4,546.68 \$ 16,689.25 \$ 18,794.12 \$ 5,546.29	\$ 35,063.96 \$ 3,463.60 \$ 9,134.78 \$ 4,546.68 \$ 16,689.25 \$ 18,794.12 \$ 5,546.29	
Total												
Stormwater Pollution Prevention Plan	Buena Vista Channel Ninth Avenue Drain	May-03 \$ 8,402.50	\$ 5,000.00 \$ 10,000.00	\$ 11,000.00 \$ 4,025.00	1	7531.77 7803.52	8546.72 8546.72	1.13 1.10	\$ 12,482.31 \$ 10,952.39	\$ 12,482.31 \$ 10,952.39		
Total												
Restoration of Existing Improvements	Buena Vista Channel Gratian Street Drain Puddingstone Channel Invert Access Ramp Ninth Avenue Drain	May-03 \$ 3,127.33 \$ 4,114.64 \$ 49,897.90	\$ 22,316.67 \$ 4,000.00 \$ 92,000.00	\$ 55,900.00 \$ 4,100.00 \$ 38,479.00	1 1 1	7531.77 7402.75 7803.52	8546.72 8546.72 8546.72	1.13 1.15 1.13	\$ 63,432.85 \$ 4,733.59 \$ 11,353.23	\$ 63,432.85 \$ 4,733.59 \$ 11,353.23		
Total												

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN UNIT COST ESTIMATE

Cost Estimate Type	Name of Project (A)	Bid Date (B)	Average Item Bid (C) ⁽¹⁾	Engineer's Estimate (D) ⁽¹⁾	Low Bidder Item Bid (E) ⁽¹⁾	Quantity (F)	CCI @ Bid Date (G) ⁽²⁾	CCI @ June 2006 (H)	Adjustment Factor (I) = H / G	Greatest of Item Cost C, D or E Adjusted With Adjustment Factor (J) = C or D or E * I	Amount (K) = F * J	Weighted Average Unit Cost (L) = K / F
Office Facilities	Buena Vista Channel Gratián Street Drain Ninth Avenue Drain	May-03 Dec-02 May-04	\$ 18,650.00 \$ 3,402.33 \$ 13,429.90	\$ 13,600.00 \$ 2,550.00 \$ 12,750.00	\$ 25,900.00 \$ 3,250.00 \$ 11,299.00	1 1 1	7531.77 7402.75 7803.52	8546.72 8546.72 8546.72	1.13 1.15 1.10	\$ 29,390.18 \$ 3,928.10 \$ 14,708.95		
	Project No. 64, Eastern Avenue Storm Drain Beverly Pico Drain, Unit 2	Jun-05 Jun-01	\$ 20,562.50 \$ 6,875.14	\$ 5,000.00 \$ -	\$ 5,000.00 \$ 3,000.00	1 1	8299.28 7226.92	8546.72 8546.72	1.03 1.18	\$ 21,175.56 \$ 21,175.56		
	Total											
	Channel Gratián Street Drain Ninth Avenue Drain	May-03 Dec-02 May-04	\$ 340,535.70 \$ 7,961.67 \$ 188,197.30	\$ 300,000.00 \$ 4,700.00 \$ 200,000.00	\$ 413,214.20 \$ 8,000.00 \$ 147,973.00	1 1 1	7531.77 7402.75 7803.52	8546.72 8546.72 8546.72	1.13 1.15 1.10	\$ 77,333.49 \$ 468,897.23 \$ 219,047.81		
	Project No. 64, Eastern Avenue Storm Drain	Jun-05	\$ 68,126.25	\$ 30,000.00	\$ 5,000.00	2	8299.28	8546.72	1.03	\$ 140,314.82	\$ 837,496.12	\$ 167,499.22
	Total											
	Vernon Channel Fieldbrook Debris Basin 126TH Street EI A.I.	May-01 Apr-02	\$ 8.35 \$ 30.71	\$ - \$ 50.00	\$ 10.00 \$ 23.00	15,100 672	7226.92 7402.75	8546.72 8546.72	1.18 1.15	\$ 11.83 \$ 57.73	\$ 178,576.04 \$ 38,792.31	
	Paseo Del Rio San Gabriel Coastal Basin Spreading Grounds, Phase 2, Multiuse Improvements	Sep-05	\$ 512.50	\$ 150.00	\$ 100.00	15	8485.2	8546.72	1.01	\$ 516.22	\$ 7,743.24	\$ 225,111.88
	Total											
AC Pavement Crushed Aggregate	Design Division consulted with its Highway Unit for today's unit costs for AC pavement and crushed aggregate.											
Chain Link ROW Wall Fences	Buena Vista Channel Puddingstone Channel Invert Ninth Avenue Drain	May-03 Apr-03 May-04	\$ 8.58 \$ 23.15 \$ 21.51	\$ 10.85 \$ 26.00 \$ 20.00	\$ 8.00 \$ 8.53 \$ 16.10	5,074 89 400	7531.77 7531.77 7803.52	8546.72 8546.72 8546.72	1.13 1.13 1.10	\$ 12.31 \$ 29.50 \$ 23.56	\$ 62,471.60 \$ 2,625.83 \$ 9,423.44	\$ 13.40
	Total											

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN UNIT COST ESTIMATE

Cost Estimate Type	Name of Project (A)	Bid Date (B)	Average Item Bid (C) ⁽¹⁾	Engineer's Estimate (D) ⁽¹⁾	Low Bidder Item Bid (E) ⁽¹⁾	Quantity (F)	CCI @ Bid Date (G) ⁽²⁾	CCI @ June 2006 (H)	Adjustment Factor (I) = H / G	Greatest of Item Cost C, D or E Adjusted With Adjustment Factor (J) = C or D or E * I	Amount (K) = F * J	Weighted Average Unit Cost (L) = K / F
Chain Link Channel Wall Fences	Buena Vista Channel Ninth Avenue Drain	May-03	\$ 7.58	\$ 9.94	\$ 6.00	3,893	7531.77	8546.72	1.13	\$ 11.28	\$ 43,910.99	
Total		May-04	\$ 21.51	\$ 20.00	\$ 16.10	400	7803.52	8546.72	1.10	\$ 23.56	\$ 9,423.44	
4' High Walk Gate	Buena Vista Channel	May-03	\$ 323.00	\$ 375.00	\$ 330.00	1	7531.77	8546.72	1.13	\$ 425.53	\$ 53,334.43	\$ 12.42
Total		May-03	\$ 800.00	\$ 1,500.00	\$ 1,050.00	1	7531.77	8546.72	1.13	\$ 1,702.13	\$ 1,702.13	
24' Double Drive Gate	Buena Vista Channel	May-03	\$ 800.00	\$ 1,500.00	\$ 1,050.00	1	7531.77	8546.72	1.13	\$ 1,702.13	\$ 1,702.13	
Total												
16' Double Drive Gate	Buena Vista Channel Puddingstone Channel Invert Access Ramp Ninth Avenue Drain	May-03	\$ 774.83	\$ 1,200.00	\$ 660.00	2	7531.77	8546.72	1.13	\$ 1,361.71	\$ 2,723.41	
16' Double Drive Gate		Apr-03	\$ 1,747.21	\$ 1,200.00	\$ 811.00	1	7531.77	8546.72	1.13	\$ 1,982.66	\$ 1,982.66	
16' Double Drive Gate		May-04	\$ 2,024.30	\$ 1,250.00	\$ 863.00	1	7803.52	8546.72	1.10	\$ 2,217.09	\$ 2,217.09	
Total						4						
15' Double Drive Gate	Liberty Canyon Channel Access Ramp @ PD 572	Jun-04	\$ 839.67	\$ 1,200.00	\$ 500.00	1	7843.85	8546.72	1.09	\$ 1,307.53	\$ 1,307.53	
Total						1						
Catch Basin Per Std Plan 300, W=07	Ninth Avenue Drain	May-04	\$ 3,613.90	\$ 3,362.00	\$ 3,879.00	8	7803.52	8546.72	1.10	\$ 4,248.43	\$ 33,987.46	
Catch Basin Per Std Plan 307, W=07	Ninth Avenue Drain	May-04	\$ 4,018.80	\$ 7,589.00	\$ 4,488.00	2	7803.52	8546.72	1.10	\$ 8,311.77	\$ 16,623.54	
Total						10						
Manhole Per Std 322	Ninth Avenue Drain	May-04	\$ 4,780.00	\$ 6,427.00	\$ 4,600.00	8	7803.52	8546.72	1.10	\$ 7,039.10	\$ 56,312.81	\$ 5,061.10
Total						8						
Junction Structure Per Std Plan 331	Ninth Avenue Drain	May-04	\$ 1,255.00	\$ 1,200.00	\$ 1,150.00	50	7803.52	8546.72	1.10	\$ 1,374.53	\$ 68,726.25	
Junction Structure Per Std Plan 333	Ninth Avenue Drain	May-04	\$ 1,521.00	\$ 1,375.00	\$ 1,380.00	3	7803.52	8546.72	1.10	\$ 1,665.86	\$ 4,997.56	
Total						53						
18" RCP (2000 D)	Beverly Pico Drain, Unit 2	May-04	\$ 97.61	\$ 75.00	\$ 57.10	1,904	7803.52	8546.72	1.10	\$ 106.91	\$ 203,549.57	
Total						96.97	146	7226.92	8546.72	1.18	\$ 139.03	\$ 20,298.25
24" RCP (2000 D)	Gratian Street Drain	Dec-02	\$ 177.67	\$ 145.00	\$ 94.00	138	7402.75	8546.72	1.15	\$ 205.13	\$ 28,307.37	
Total						95.00	69.16	192	7803.52	8546.72	1.10	\$ 22,567.88
						330						\$ 50,875.26
												\$ 154.17

DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN UNIT COST ESTIMATE

Cost Estimate Type	Name of Project (A)	Bid Date (B)	Average Item Bid (C) ⁽¹⁾	Engineer's Estimate (D) ⁽¹⁾	Low Bidder Item Bid (E) ⁽¹⁾	Quantity (F)	CCI @ June 2006 (G) ⁽²⁾	Adjustment Factor (I) = H / G	Greatest of Item Cost C, D or E Adjusted With Adjustment Factor (J) = C or D or E * I	Amount (K) = F * J	Weighted Average Unit Cost (L) = K / F
30" RCP (2000 D)	Buena Vista Channel Ninth Avenue Drain	May-03	\$ 257.00	\$ 131.00	\$ 310.00	8	7531.77	8546.72	1.13	\$ 351.77	\$ 2,814.19
Total		May-04	\$ 127.38	\$ 130.00	\$ 82.83	643	7803.52	8546.72	1.10	\$ 142.38	\$ 91,551.03
42" RCP (2000 D)	Ninth Avenue Drain	May-04	\$ 168.18	\$ 172.00	\$ 126.83	202	7803.52	8546.72	1.10	\$ 94,365.23	\$ 144.95
Total						202				\$ 38,052.99	\$ 188.38

Cost Estimate Type	Name of Project (A)	Width (Feet) (B)	Weighted Average Unit Cost (C)	Weighted Average Cost Per Foot (D) = C / B	Weighted Average Cost For 12' (E) = D*12
15' Double Drive Gate	Liberty Canyon Channel Access Ramp @ PD 572 Buena Vista Channel, Puddingstone Channel Invert Access Ramp, Ninth Avenue Drain	15	\$ 1,307.53	\$ 87.17	
16' Double Drive Gate	Buena Vista Channel	16	\$ 1,730.79	\$ 108.17	
24' Double Drive Gate		24	\$ 1,702.13	\$ 70.92	
Average for 12' Double Drive Gate ⁽⁴⁾		55	\$ 4,740.45	\$ 86.19	\$ 1,034.28

Cost Estimate Type	Name of Project (A)	Diameter (Inch) (B)	Weighted Average Unit Cost (C)	Weighted Average Unit Cost Per Inch (D) = C / B	Weighted Average Item Bid For 21" (E) = D*21
18" RCP (2000 D)	Ninth Avenue Drain, Beverly Pico Drain Unit 2 Gratian Street Drain, Ninth Avenue Drain	18	\$ 109.19	\$ 6.07	
24" RCP (2000 D)	Buena Vista Channel, Ninth Avenue Drain Ninth Avenue Drain	24	\$ 154.17	\$ 6.42	
30" RCP (2000 D)		30	\$ 144.95	\$ 4.83	
42" RCP (2000 D)		42	\$ 188.38	\$ 4.49	
Average for 21" RCP (2000 D) ⁽⁵⁾		114	\$ 595.70	\$ 5.23	\$ 109.92

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN UNIT COST ESTIMATE**

Cost Estimate Type (A)	Name of Project (B)	Bid Date (C) ⁽¹⁾	Average Item Bid (C) ⁽¹⁾	Engineer's Estimate (D) ⁽¹⁾	Low Bidder Item Bid (E) ⁽¹⁾	Quantity (F)	CCI @ Bid Date (G) ⁽²⁾	CCI @ June 2006 (H)	Adjustment Factor (I) = H / G	Greatest of Item Cost C, D or E Adjusted With Adjustment Factor (J) = C or D or E * I	Amount (K) = F * J	Weighted Average Unit Cost (L) = K / F
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Footnotes:

- (1) Antelope Valley is a region in which various assumptions are required at this stage, including the location, size, and costs of various drainage need for the associated future developments. As such, the greatest amount among the Average Item Bid, Engineer's Estimate, and Low Bidder Item Bid is used as the base price to determine the CCI adjusted weighted average unit cost.
- (2) Used Engineering News Record (ENR) published Construction Cost Index (CCI) for Los Angeles to adjust the base price. ENR traditionally published the CCI on a year-to-year basis. Due to construction costs significantly increased in recent year, ENR began published CCI on a month to month basis since January 2004. CCI for December will be used for project with bid date prior 2004.
- (3) Uses the weighted average method to determine the CCI adjusted weighted average unit cost.
- (4) There was no bid history found for 12' Double Drive Gate, hence, it was determined by using the average of the Weighted Average Cost per foot of 24' Double Drive Gate, 16' Double Drive Gate and 15' Double Drive Gate multiplied by 12.
- (5) There was no bid history found for 21" RCP (2000 D), hence, it was determined by using the average of the Weighted Average Cost per inch of 18" RCP (2000 D), 24" RCP (2000 D), 30" RCP (2000 D) and 42" RCP (2000 D) multiplied by 21.

**DEPARTMENT OF PUBLIC WORKS
WATERSHED MANAGEMENT DIVISION
ANTELOPE VALLEY COMPREHENSIVE PLAN
NUMBER OF DEVELOPED SINGLE-FAMILY LOTS, MULTI-FAMILY LOTS,
AND THE COMMERCIAL/INDUSTRIAL ACREAGE WITHIN THE UNINCORPORATED AREAS**

SINGLE-FAMILY (RESIDENTIAL) ⁽¹⁾

No. of Unit	MAIL NUMBER	MAIL STREET	IMPROVED VALUE ⁽²⁾	MAIL CITY	MAIL ZIP C	AREA_SQFT	ZONE	Z_NAME	Z_DESC
7106	42226	MARBELLA ST	\$198,900	QUARTZ HILL CA	935360000	8049.32	R-1-7500	Zone R-1	Single-family residence
7107	42216	MARBELLA ST	\$189,006	QUARTZ HILL CA	935360000	8049.40	R-1-7500	Zone R-1	Single-family residence

Area (ft²) 227,525,155.67
Area (ac) 5,223.26
No. of Units 7,107

MULTI-FAMILY (RESIDENTIAL) ⁽¹⁾

No. of Unit	MAIL NUMBER	MAIL STREET	IMPROVED VALUE ⁽²⁾	MAIL CITY	MAIL ZIP C	AREA_SQFT	ZONE	Z_NAME	Z_DESC
1	529	DE LA VINA ST	\$31,171	SANTA BARBARA CA	93101000	40944.56	R-3	Zone R-3-0U	Limited multiple residence
2	47821	90TH ST W	\$74,622	LANCASTER CA	93536000	47692.89	R-3	Zone R-3-0U	Limited multiple residence
3	47809	90TH ST W	\$84,456	LANCASTER CA	93536000	47729.45	R-3	Zone R-3-0U	Limited multiple residence
4	2213	KNOXVILLE ST	\$39,694	BROKEN ARROW OK	74012000	12017.41	R-3	Zone R-3-0U	Limited multiple residence
5	9217	AVENUE Q9	\$41,549	PALMDALE CA	93550000	11939.07	R-3	Zone R-3-0U	Limited multiple residence
6	9217	AVENUE Q9	\$41,549	PALMDALE CA	93550000	12217.59	R-3	Zone R-3-0U	Limited multiple residence
7	39021	10TH ST W	\$51,780	PALMDALE CA	93551000	11834.34	R-3	Zone R-3-0U	Limited multiple residence
8	36541	ROZALEE RD	\$77,335	PALMDALE CA	93550000	12058.58	R-3	Zone R-3-0U	Limited multiple residence
9	609	DESERT WEST DR	\$142,100	RANCHO MIRAGE CA	92270000	12018.41	R-3	Zone R-3-0U	Limited multiple residence
10	17822	ELIZABETH LAKE RD	\$95,239	LAKE HUGHES CA	93532000	4813.17	R-3	Zone R-3-0U	Limited multiple residence
11	43792	TRAIL B	\$68,682	LAKE HUGHES CA	93532000	3757.74	R-3	Zone R-3-0U	Limited multiple residence
12	PO BOX 213		\$14,405	LAKE HUGHES CA	93532000	2564.06	R-3	Zone R-3-0U	Limited multiple residence
13	17854	ELIZABETH LAKE RD	\$102,000	LAKE HUGHES CA	93532000	2883.09	R-3	Zone R-3-0U	Limited multiple residence
14	13484	SUNSET DR	\$26,796	APPLE VALLEY CA	92308000	2457.63	R-3	Zone R-3-0U	Limited multiple residence
15	40318	173RD ST E	\$95,568	PALMDALE CA	93591000	22011.44	R-3-20U	Zone R-3-0U	Limited multiple residence
16	17287	PARKVALLEY AVE	\$95,705	LAKE LOS ANGELES CA	93591000	20375.55	R-3-20U	Zone R-3-0U	Limited multiple residence
17	42412	056 ST W	\$114,240	LANCASTER CA	93536000	22203.07	R-3-20U	Zone R-3-0U	Limited multiple residence
18	17225	PARKVALLEY AVE	\$70,087	PALMDALE CA	93591000	21792.20	R-3-20U	Zone R-3-0U	Limited multiple residence
19	17104	AVE K 4	\$69,153	LANCASTER CA	93535000	20146.37	R-3-20U	Zone R-3-0U	Limited multiple residence
20	40107	172ND ST E	\$98,916	PALMDALE CA	93591000	26024.78	R-3-20U	Zone R-3-0U	Limited multiple residence
21	40119	173RD ST E	\$105,774	LAKE LOS ANGELES CA	93591000	19976.09	R-3-20U	Zone R-3-0U	Limited multiple residence
22	17165	SCHOLLVIEW AVE	\$100,138	LAKE LOS ANGELES CA	93591000	27060.82	R-3-20U	Zone R-3-0U	Limited multiple residence
23	40341	FIELDSPRING ST	\$107,900	PALMDALE CA	93591000	30151.64	R-3-20U	Zone R-3-0U	Limited multiple residence
24	40326	FIELDSPRING ST	\$82,284	LAKE LOS ANGELES CA	93591000	24809.58	R-3-20U	Zone R-3-0U	Limited multiple residence
25	40327	FIELDSPRING ST	\$110,000	PALMDALE CA	93591000	24614.04	R-3-20U	Zone R-3-0U	Limited multiple residence
26	40012	17TH ST	\$110,364	LAKE LOS ANGELES CA	93591000	24877.15	R-3-20U	Zone R-3-0U	Limited multiple residence

DEPARTMENT OF PUBLIC WORKS
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NUMBER OF DEVELOPED SINGLE-FAMILY LOTS, MULTI-FAMILY LOTS,
AND THE COMMERCIAL/INDUSTRIAL ACREAGE WITHIN THE UNINCORPORATED AREAS

MULTI-FAMILY (RESIDENTIAL) (1)

No. of Unit	MAIL NUMBER	MAIL STREET	IMPROVED VALUE (2)	MAIL CITY	MAIL ZIP C	AREA SQFT	ZONE	Z. NAME	Z. DESC
692	821 AVENUE P12	\$109,718 PALMDALE CA	9355000000	5935.63	R-2	Zone R-2			
693	801 AVENUE P12	\$51,104 PALMDALE CA	9355000000	6679.47	R-2	Zone R-2			
694	P O BOX 3509	\$35,050 NORTHridge CA	9132700000	6510.85	R-2	Zone R-2			
695	44714 20TH ST W	\$18,275 LANCASTER CA	9353400000	6317.02	R-2	Zone R-2			
696	1300 SARATOGA AVE	\$74,481 VENTURA CA	9300300000	6292.07	R-2	Zone R-2			
697	38414 DIVISION ST	\$20,000 PALMDALE CA	9355000000	6040.61	R-2	Zone R-2			
698	36620 GEIGER AVE	\$252,611 PALMDALE CA	9355100000	6295.52	R-2	Zone R-2			
699	23539 HIGHLAND GLEN DR	\$71,537 NEWHALL CA	9132100000	6367.64	R-2	Zone R-2			
700	38920 9TH STE	\$130,560 PALMDALE CA	9355000000	7266.78	R-2	Zone R-2			
701	38920 RAMBLER AVE	\$114,750 PALMDALE CA	9355000000	6242.99	R-2	Zone R-2			
702	38921 9TH ST E	\$39,327 PALMDALE CA	9355000000	6310.78	R-2	Zone R-2			
703	849 AVENUE P12	\$98,708 PALMDALE CA	9355000000	11451.86	R-2	Zone R-2			
704	838 AVENUE P12	\$49,821 PALMDALE CA	9355000000	6118.30	R-2	Zone R-2			
705	828 AVENUE P12	\$33,303 PALMDALE CA	9355000000	6136.87	R-2	Zone R-2			
706	839 AVENUE P12	\$43,935 PALMDALE CA	9355000000	6099.71	R-2	Zone R-2			
707	38932 RAMBLER AVE	\$68,103 PALMDALE CA	9355000000	6242.82	R-2	Zone R-2			
708	38932 9TH STE	\$121,380 PALMDALE CA	9355000000	6992.40	R-2	Zone R-2			
709	829 AVENUE P12	\$35,680 PALMDALE CA	9355000000	6001.27	R-2	Zone R-2			
710	37419 DREXEL ST	\$36,715 PALMDALE CA	9355000000	5906.42	R-2	Zone R-2			
711	1300 SARATOGA AVE	\$74,481 VENTURA CA	9300300000	6835.38	R-2	Zone R-2			
712	22442 BERDON ST	\$160,000 WOODLAND HLS CA	9136700000	6362.61	R-2	Zone R-2			
713	38928 RAMBLER AVE	\$40,891 PALMDALE CA	9355000000	6167.98	R-2	Zone R-2			
714	707 MACLAY AVE	\$122,400 SAN FERNANDO CA	9134000000	6092.71	R-2	Zone R-2			
715	38940 9TH ST E	\$62,223 PALMDALE CA	9355000000	6871.70	R-2	Zone R-2			

Area (ft²) Area (ac) No. of Units

17,046,742.49

391.34

715

COMMERCIAL/INDUSTRIAL (1)

No. of Unit	MAIL NUMBER	MAIL STREET	IMPROVED VALUE (2)	MAIL CITY	MAIL ZIP C	AREA SQFT	ZONE	Z. NAME	Z. DESC
1	40432	11TH ST W	\$344,637	PALMDALE CA	9355100000	46927.44	C-MDP	Zone C-M	Commercial manufacturing
2	918	PALMDALE BLVD	\$659,233	PALMDALE CA	9355000000	89148.73	CPD	Zone CPD	Commercial planned development
3	10735	AQUA VISTA ST	\$123,583	N HOLLYWOOD CA	9160200000	19995.37	C-2	Zone C-2	Neighborhood commercial

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COMMERCIAL/INDUSTRIAL (1)

No. of Unit	MAIL NUMBER	MAIL STREET	IMPROVED VALUE (2)	MAIL CITY	MAIL_ZIP_C	AREA_SQFT	ZONE	Z_NAME	Z_DESC
284	42422	20TH ST W	\$120,836	LANCASTER CA	9353400000	10372.00	M-1	Zone M-1	Light manufacturing
285	42816	BLUEHILLS DR	\$113,730	LAKE HUGHES CA	9353200000	43737.90	M-1	Zone M-1	Light manufacturing
286	PO BOX 58104		\$509,154	VERNON CA	9005800000	36669.16	M-1	Zone M-1	Light manufacturing
287	4826	SANTA FE AVE	\$13,247	VERNON CA	9005800000	137616.21	M-1	Zone M-1	Light manufacturing
288	PO BOX 1		\$13,724	LITTLEROCK CA	9354300000	12795.01	M-1	Zone M-1	Light manufacturing
289	48051	90TH ST W	\$10,840	LANCASTER CA	9353600000	41426.68	M-1	Zone M-1	Light manufacturing
290	32202	JOAQUIN DR	\$97,362	ACTON CA	9351000000	6271.14	M-1	Zone M-1	Light manufacturing
291	10501	AVENUE M	\$18,897	LANCASTER CA	9353400000	27318.84	M-1	Zone M-1	Light manufacturing
292	PO BOX 3275		\$74,745	QUARTZ HILL CA	9358600000	30771.62	M-1	Zone M-1	Light manufacturing
293	PO BOX 900640		\$8,130	PALMDALE CA	9359000000	19324.21	M-1	Zone M-1	Light manufacturing
294	PO BOX 900640		\$8,130	PALMDALE CA	9359000000	6001.76	M-1	Zone M-1	Light manufacturing
295	605 LAGUNA DR		\$29,674	SIMI VALLEY CA	9306500000	80842.38	M-1	Zone M-1	Light manufacturing
296	38507	15TH ST E	\$58,987	PALMDALE CA	9355000000	142119.93	M-1	Zone M-1	Light manufacturing
297	PO BOX 1118		\$17,748	LITTLEROCK CA	9354300000	79507.68	M-1	Zone M-1	Light manufacturing
298	14021	MARQUESES WAY	\$18,852	MARINA DL REY CA	9029200000	15494.55	M-1	Zone M-1	Light manufacturing
299	35022	82ND ST E	\$50,988	LITTLEROCK CA	9354300000	12863.12	M-1	Zone M-1	Light manufacturing
300	35022	82ND ST E	\$50,988	LITTLEROCK CA	9354300000	35824.49	M-1	Zone M-1	Light manufacturing
301	PO BOX 118		\$17,748	LITTLEROCK CA	9354300000	8579.04	M-1	Zone M-1	Light manufacturing
302	34446	125TH ST E	\$24,939	PEARBLOSSOM CA	9355300000	16561.59	M-1	Zone M-1	Light manufacturing
303	2127	AVENUE Q2	\$91,912	PALMDALE CA	9358000000	132810.41	M-1	Zone M-1	Light manufacturing
304	9832	CALVIN AVE	\$281,467	NORTHRIDGE CA	9132400000	55327.13	M-1-OP	Zone M-1	Light manufacturing
305	39015	8TH ST E	\$49,760	PALMDALE CA	9355000000	116449.32	M-1	Zone M-1	Light manufacturing
306	9513	GOODBEE ST	\$39,743	PICO RIVERA CA	9066000000	4798.81	M-1	Zone M-1	Light manufacturing
307	38963	SIERRA HWY	\$38,591	PALMDALE CA	9355000000	23925.05	M-1	Zone M-1	Light manufacturing
308	38963	SIERRA HWY	\$38,591	PALMDALE CA	9355000000	171336.07	M-1	Zone M-1	Light manufacturing
				Area (ft ²)		42,697,178.03			
				Area (ac)		980.19			

Footnote:

(1) Mapping and Property Management Division produced a digital version of the 1987 Antelope Valley Drainage Area. Within the Drainage Area, parcels with improvement values greater than \$5,000 were considered developed. Utilizing the ArcMap software and given the attributed land use designations, the total developed square footage and the number of developed parcels were derived, excluding totals within the cities of Palmdale and Lancaster and Edwards Air Force Base.

(2) Improved value is the estimated value of the structure or attribute within a given lot.